## AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application:

## LISTING OF THE CLAIMS

**1. (currently amended)** A compound having the ~~structural~~ formula $L^1[MQ^1Q^2]L^2$ in which M is a ~~mid-transition~~ metal selected from the group consisting of Nb, Ta, Mo, W, Mn and Re, $Q^1$ and $Q^2$ are each a univalent ~~radical~~ substituent, and $L^1$ and $L^2$ are ligands coordinated to M, wherein each of $L^1$ and $L^2$ contains a first coordinating atom that is a nitrogen atom contained within a C=N group, and a second ~~coordinating atom that is either a second nitrogen atom, optionally present in a second C=N group, or an~~ oxygen, sulfur or phosphorus atom.

**2. (original)** The compound of claim 1, wherein, in each of $L^1$ and $L^2$, the second coordinating atom is a second nitrogen atom.

**3. (original)** The compound of claim 2, wherein, in each of $L^1$ and $L^2$, the second nitrogen atom is present in a second C=N group.

**4. (original)** The compound of claim 3, wherein $L^1$ and $L^2$ are identical.

**5. (original)** The compound of claim 4, wherein the first nitrogen atom in each of $L^1$ and $L^2$ is bound to a first substituent $R_S$, and the second nitrogen atom in each of $L^1$ and $L^2$ is bound to a second substituent $R_L$, wherein the difference in steric bulk between $R_S$ and $R_L$ is sufficient to result in isospecificity when the compound is used as a polymerization catalyst.

**6. (original)** The compound of claim 3, wherein $L^1$ and $L^2$ are different.

**7. (original)** The compound of claim 6, wherein the first and second nitrogen atoms in the ligand $L^1$ are bound to a first substituent $R_S$, and the first and second nitrogen atoms in the ligand $L^2$ are bound to a second substituent $R_L$, wherein the difference in steric bulk between $R_S$ and $R_L$ is sufficient to result in syndiospecificity when the compound is used as a polymerization catalyst.

**8. (original)** The compound of claim 1, wherein the compound has a positive charge +y and is associated with y/z anions each bearing a negative charge -z.

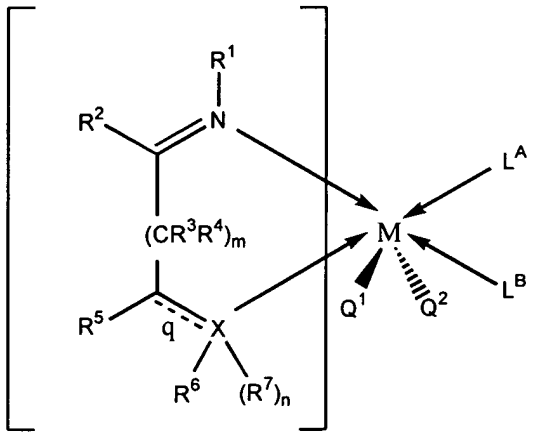
**9. (original)** The compound of claim 8, wherein y and z are independently integers in the range of 1 to 4 inclusive.

**10. (original)** The compound of claim 9, wherein y and z are independently 1 or 2.

**11. (original)** The compound of claim 8, wherein the anions are selected from the group ~~consisting of halide and pseudohalide.~~

**12. (currently amended)** A compound having the structure of formula (I)

(I)




$L^1$

wherein:

M is a ~~mid-transition~~ metal selected from Groups VA, VIA and VIIA of the periodic table of the elements;

$Q^1$ and $Q^2$ are independently selected from the group consisting of hydrido, halide, alkoxy, amido, unsubstituted $C_1$-$C_{30}$ hydrocarbyl, $C_1$-$C_{30}$ hydrocarbyl substituted with one or more substituents ~~such as electron-withdrawing groups~~, and $C_1$-$C_{30}$ hydrocarbyl-substituted Group IVB elements, or $Q^1$ and $Q^2$ may together form an alkylidene olefin, acetylene, or a five- or six-membered cyclic hydrocarbyl group;

m and n are independently zero or 1;

q is an optional double bond;

X is N, O, S or P, with the provisos that (a) when X is N or P, then either n is 1 or q is present as a double bond, but not both, and (b) when X is O or S, then n is zero and q is absent;

$R^1$, $R^6$, and $R^7$ are independently hydrido, hydrocarbyl or substituted hydrocarbyl, and $R^2$ and $R^5$ are independently hydrido, halo, hydrocarbyl or substituted hydrocarbyl, or $R^1$ and $R^2$ and/or $R^5$ and $R^6$ may be taken together to form a linkage -Q-, resulting in a five- or six-membered ring, wherein Q is $-[(CR)_a(Z)_b]-$ in which a is 2, 3 or 4, Z is N, O or S, b is zero or 1, the sum of a and b is 3 or 4, and R is selected from the group consisting of hydrido, halo, hydrocarbyl, hydrocarbyloxy, trialkylsilyl, $NR^8_2$, $OR^9$, and $NO_2$, wherein $R^8$ and $R^9$ are each independently hydrocarbyl, or wherein R moieties on adjacent carbon atoms may be linked to form an additional five- or six-membered ring, or $R^2$ and $R^5$ may together ~~form a linkage -Q- as just defined~~;

$R^3$ and $R^4$ are independently selected from the group consisting of hydrido and hydrocarbyl, or at least one of $R^3$ and $R^4$ may be bound through a lower alkylene linkage to an atom contained within $L^A$ or $L^B$;

$L^A$ and $L^B$ are ligands which may be the same or different and are independently selected from the group consisting of nitrogen-containing, sulfur-containing and oxygen-containing heterocycles, tertiary amines and phosphines, or $L^A$ and $L^B$ may together form a single bidentate ligand that may or may not be the same as $L^1$,

with the proviso that when (a) $L^A$ and $L^B$ form a single bidentate ligand that is identical to $L^1$ and M is V or Cr, then either (b) $R^1$ and $R^2$ or $R^5$ and $R^6$ are taken together to form a linkage -Q- as defined above, or (c) X is other than N, or both (b) and (c).

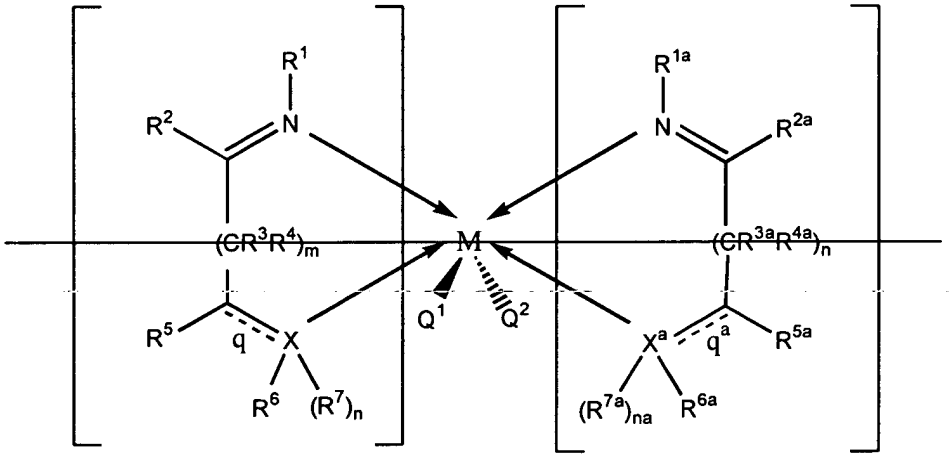
**13. (original)** The compound of claim 12, wherein the compound has a positive charge +y and is associated with y/z anions each bearing a negative charge -z.

**14. (original)** The compound of claim 13, wherein y and z are independently integers in the range of 1 to 4 inclusive.

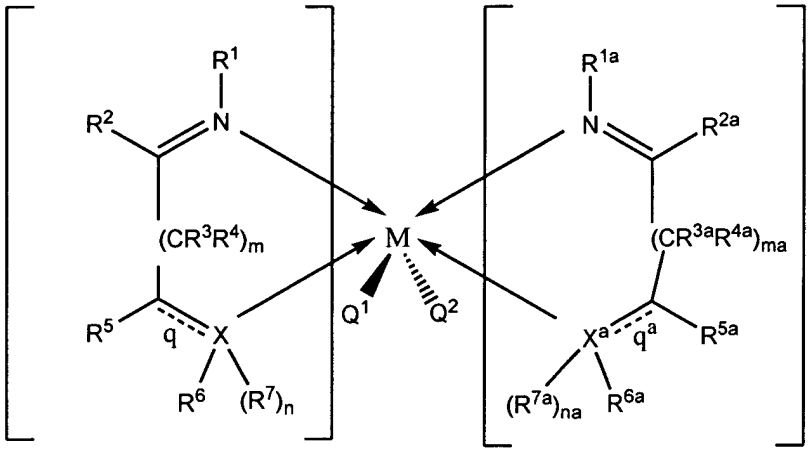
**15. (original)** The compound of claim 14, wherein y and z are independently 1 or 2.

**16. (currently amended)** The compound of claim ~~12~~ 13, wherein the anions are selected from the group consisting of halide and pseudohalide.

**17. (currently amended)** The compound of claim 12, having the structure of formula (II)




(II)




wherein, $q^a$, ma, na, and $R^{1a}$ through $R^{7a}$ are defined as for q, m, n and $R^1$ through $R^7$, respectively.

**18. (original)** The compound of claim 17, wherein the compound has a positive charge +y and is associated with y/z anions each bearing a negative charge -z.

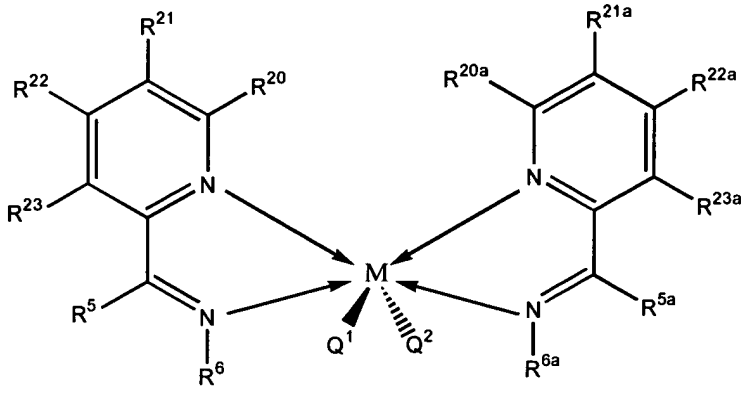
**19. (original)** The compound of claim 18, wherein y and z are independently integers in the range of 1 to 4 inclusive.

**20. (original)** The compound of claim 19, wherein y and z are independently 1 or 2.

**21. (currently amended)** The compound of claim ~~17~~ 18, wherein the anions are selected from the group consisting of halide and pseudohalide.

**22. (original)** The compound of claim 17, having the structure of formula (V)

(V)




wherein:

$R^{20}$, $R^{20a}$, $R^{21}$, $R^{21a}$, $R^{22}$, $R^{22a}$, $R^{23}$ and $R^{23a}$ are hydrido or hydrocarbyl of 1 to 10 carbon atoms, or any two adjacent $R^{20}$, $R^{20a}$, $R^{21}$, $R^{21a}$, $R^{22}$, $R^{22a}$, $R^{23}$ and $R^{23a}$ groups may be linked to form a five- or six-membered aromatic ring.

**23. (original)** The compound of claim 22, wherein $R^{20}$, $R^{20a}$, $R^{21}$, $R^{21a}$, $R^{22}$, $R^{22a}$, $R^{23}$ and $R^{23a}$ are hydrido.

**24. (original)** The compound of claim 22, wherein $R^{20}$ and $R^{20a}$ are methyl, and $R^{21}$, $R^{21a}$, $R^{22}$, $R^{22a}$, $R^{23}$ and $R^{23a}$ are hydrido.

**25. (original)** The compound of any one of claims 21, 22 or 23, wherein the compound has a positive charge +y and is associated with y/z anions each bearing a negative charge -z.

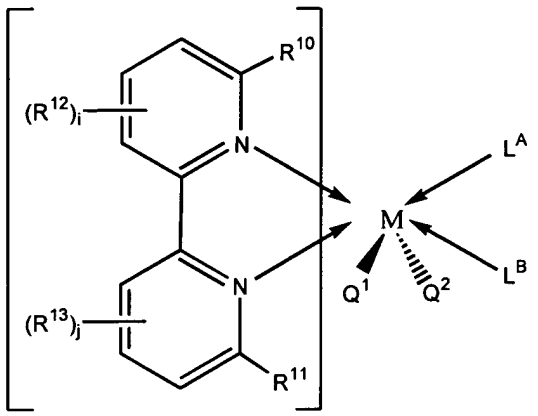
**26. (original)** The compound of claim 25, wherein y and z are independently integers in the range of 1 to 4 inclusive.

**27. (original)** The compound of claim 26, wherein y and z are independently 1 or 2.

**28. (original)** The compound of claim 25, wherein the anions are selected from the group consisting of halide and pseudohalide.

**29. (currently amended)** A compound having the structure of formula (III)

(III)




$L^3$

wherein:

M is a ~~mid-transition~~ metal selected from Groups VA, VIA and VIIA of the periodic table of the elements;

$Q^1$ and $Q^2$ are independently selected from the group consisting of hydrido, halide, alkoxy, amido, unsubstituted $C_1$-$C_{30}$ hydrocarbyl, $C_1$-$C_{30}$ hydrocarbyl substituted with one or more substituents ~~such as electron-withdrawing groups~~, and $C_1$-$C_{30}$ hydrocarbyl-substituted Group IVB elements, or $Q^1$ and $Q^2$ may together form an alkylidene olefin, acetylene, or a five- or six-membered cyclic hydrocarbyl group;

$L^A$ and $L^B$ are ligands which may be the same or different and are independently selected from the group consisting of nitrogen-containing, sulfur-containing and oxygen-containing heterocycles, tertiary amines and phosphines, or $L^A$ and $L^B$ may together form a single bidentate ligand that may or may not be the same as $L^3$;

i and j are independently zero, 1, 2 or 3; and

$R^{10}$, $R^{11}$, $R^{12}$ and $R^{13}$ are independently hydrido, hydrocarbyl or substituted hydrocarbyl.

**30. (withdrawn)** A catalyst system comprising the compound of any one of claims 1, 5, 7, 12, 17 or 22 and a catalyst activator effective to produce a catalytically active ionic species when combined with said compound.

**31. (withdrawn)** The catalyst system of claim 30, wherein the catalyst activator is aluminum-containing or boron-containing.

**32. (withdrawn)** The catalyst system of claim 31, wherein the catalyst activator is aluminum-containing.

**33. (withdrawn)** The catalyst system of claim 32, wherein the catalyst activator is an organoaluminum compound.

**34. (withdrawn)** The catalyst system of claim 33, wherein the catalyst activator is an alkyl aluminoxane.

**35. (withdrawn)** The catalyst system of claim 34, wherein the catalyst activator is methyl aluminoxane.

**36. (withdrawn)** The catalyst system of claim 31, wherein the catalyst activator is boron-containing.

**37. (withdrawn)** The catalyst system of claim 36, wherein the catalyst activator is a fluorohydrocarbylboron compound.

**38. (withdrawn)** The catalyst system of claim 37, wherein the catalyst activator is a fluorinated phenylborate.

**39. (withdrawn)** The catalyst system of claim 30, further including an inert polymerization diluent.

**40. (withdrawn)** The catalyst system of claim 39, wherein the diluent is a volatile hydrocarbon solvent.

**Claims 41-51 (canceled).**

**52. (new)** The compound of claim 12, wherein $Q^1$ and $Q^2$ are independently selected from the group consisting of hydrido, halide, alkoxy, amido, unsubstituted $C_1$-$C_{30}$ hydrocarbyl, $C_1$-$C_{30}$ hydrocarbyl substituted with one or more electron-withdrawing groups, and $C_1$-$C_{30}$ hydrocarbyl-substituted Group IVB elements, or $Q^1$ and $Q^2$ may together form an alkylidene olefin, acetylene, or a five- or six-membered cyclic hydrocarbyl group.

**53. (new)** The compound of claim 29, wherein $Q^1$ and $Q^2$ are independently selected from the group consisting of hydrido, halide, alkoxy, amido, unsubstituted $C_1$-$C_{30}$ hydrocarbyl, $C_1$-$C_{30}$ hydrocarbyl substituted with one or more electron-withdrawing groups, and $C_1$-$C_{30}$ hydrocarbyl-substituted Group IVB elements, or $Q^1$ and $Q^2$ may together form an alkylidene olefin, acetylene, or a five- or six-membered cyclic hydrocarbyl group.

**54. (new)** The compound of claim 1, wherein one of $L^1$ and $L^2$ contains a second coordinating atom that is either a second nitrogen atom, optionally present in a second C=N group, or an oxygen, sulfur or phosphorus atom, and the other of $L^1$ and $L^2$ contains a second coordinating atom that is either a second nitrogen atom, optionally present in a second C=N group, or a sulfur or phosphorus atom.